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What is claimed is :

1. An expression vector encoding a CD4-gamma2 chimeric heavy chain homodimer designated CD4-IgG2-pcDNA1 (ATCC No. 40952).
- 5 2. A CD4-gamma2 chimeric heavy chain homodimer encoded by the expression vector of claim 1.
3. A method of producing a CD4-gamma2 chimeric heavy chain homodimer which comprises:
 - 10 a) transfected a mammalian cell with the expression vector of claim 1;
 - b) culturing the resulting transfected mammalian cell under conditions such that chimeric heavy chain homodimer is produced; and
 - c) recovering the chimeric heavy chain homodimer so produced.
- 20 4. A method of claim 3, wherein the mammalian cell is a COS cell, CHO cell or myeloma cell.
5. A method of inhibiting HIV infection of a CD4+ cell which comprises treating the CD4+ cell with an amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to inhibit infection of the cell.
- 25 30 6. A method of preventing a subject from being infected with HIV which comprises administering to the subject an amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to prevent the subject from being infected with HIV.

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7. A method of treating a subject infected with HIV so as to block the spread of HIV infection which comprises administering to the subject an amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to block the spread of HIV infection.

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8. A pharmaceutical composition which comprises the CD4-gamma2 chimeric heavy chain homodimer of claim 2 in an amount effective to inhibit HIV infection of a CD4+ cell and a pharmaceutically acceptable carrier.

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9. A composition of matter comprising a CD4-gamma2 chimeric heavy chain homodimer of claim 2 and a toxin linked thereto.

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10. A composition of claim 9, wherein the toxin is the deglycosylated A chain of ricin, domains II or III of Pseudomonas exotoxin A, or Diphtheria toxin.

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11. A diagnostic reagent comprising a CD4-gamma2 chimeric heavy chain homodimer of claim 2 and a detectable marker linked thereto.

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12. A diagnostic reagent of claim 11 wherein the detectable marker is a radioisotope, chromophore, or fluorophore.

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13. An expression vector encoding the heavy chains of a CD4-IgG2 chimeric heterotetramer designated CD4-IgG2HC-pRcCMV (ATCC No. 75193).

14. An expression vector encoding the light chains of a CD4-IgG2 chimeric heterotetramer designated CD4-kLC-pRcCMV (ATCC No. 75194).

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15. A CD4-IgG2 chimeric heterotetramer, the heavy chains of which are encoded by the expression vector of claim 13.

16. A CD4-IgG2 chimeric heterotetramer, the light chains of which are encoded by the expression vector of claim 14.

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17. A CD4-IgG2 chimeric heterotetramer the heavy and the light chains of which are encoded by the expression vectors of claims 13 and 14,
10 respectively.

18. A method of producing a CD4-IgG2 chimeric heterotetramer which comprises:

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a) cotransfected a mammalian cell with the expression vector of claim 13 and an expression vector encoding a light chain;

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b) culturing the resulting cotransfected mammalian cell under conditions such that the CD4-IgG2 chimeric heterotetramer is produced; and

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c) recovering the CD4-IgG2 chimeric heterotetramer so produced.

19. A method of producing an CD4-IgG2 chimeric heterotetramer which comprises:

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a) cotransfected a mammalian cell with the expression vector of claim 14 and an expression vector encoding an IgG2 heavy chain and;

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- b) culturing the resulting cotransfected mammalian cell under conditions such that the chimeric heterotetramer is produced; and
- c) recovering the chimeric heterotetramer so produced.

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20. A method of producing a CD4-IgG2 chimeric heterotetramer which comprises:

- a) cotransfected a mammalian cell with the expression vectors of claim 13 and 14;
- b) culturing the resulting cotransfected mammalian cell under conditions such that the chimeric heterotetramer is produced; and
- c) recovering the chimeric heterotetramer so produced.

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20. 21. A method of claim 18, 19 or 20, wherein the mammalian cell is a COS cell, CHO cell or myeloma cell.

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22. A method of inhibiting HIV infection of a CD4+ cell which comprises treating the CD4+ cell with an amount of the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to inhibit infection of the cell.

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23. A method of preventing a subject from being infected with HIV which comprises administering to the subject an amount of the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to prevent the subject from being infected with HIV.

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24. A method of treating a subject infected with HIV so as to block the spread of HIV infection which comprises administering to the subject an amount of CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to block spread of HIV infection.
- 5 25. A pharmaceutical composition which comprises the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 in an amount effective to inhibit HIV infection of a CD4+ cell and a pharmaceutically acceptable carrier.
- 10 26. A composition of matter comprising a CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 and a toxin linked thereto.
- 15 27. A composition of claim 26, wherein the toxin is the deglycosylated A chain of ricin, domains II or III of Pseudomonas exotoxin A, and Diphtheria toxin.
- 20 28. A diagnostic reagent comprising a CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 and a detectable marker linked thereto.
- 25 29. A diagnostic reagent of claim 28 wherein the detectable marker is a radioisotope, chromophore or fluorophore.
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